What is claimed is:

1) A composition of matter useful as a phosphor in light emitting diodes, which comprises a material described by the formula:

$$Sr_xBa_yCa_zSiO_4:Eu$$

in which x, y, and z are each independently any value between 0 and 2, subject to the proviso that the sum of x, y, or z is equal to at least 1, and wherein Eu is present in any amount between about 0.0001 % and about 5 % in mole percent based on the total molar weight of said composition, and wherein at least 50 % of all of the europium present is present in the divalent state.

2) A composition according to claim 1 wherein $0.5 \leq x \leq 1.5$; $0 \leq y \leq 0.5$; and $0.5 \leq z \leq 1.5$.

3) A composition according to claim 1 wherein $x = 1$, $y = 0$, and $z = 1$.

4) A composition according to claim 1 wherein $1.5 \leq x \leq 2.5$; $0 \leq y \leq 0.5$; and $0 \leq z \leq 0.5$.

5) A composition according to claim 1 wherein $x = 2$, $y = 0$, and $z = 0$.

6) A composition according to claim 1 wherein $1.0 \leq x \leq 2.0$; $0 \leq y \leq 1.0$; and $0 \leq z \leq 0.5$.

7) A composition according to claim 1 wherein $x = 1.5$, $y = 0.5$, and $z = 0$.

8) A composition of matter useful as a phosphor material in light emitting diodes, which composition comprises a material described by the formula:

$$Sr_xBa_yCa_zSiO_4:Eu, B$$

in which x, y, and z are each independently any value between 0 and 2, including 0 and 2 and subject to the proviso that the sum of x, y, or z is equal to at least 1; and wherein B is selected from the group consisting of: Ce, Mn, Ti, Pb, and Sn, and wherein at least 50 % of all of the europium present is present in the divalent state.

9) A composition according to claim 8 wherein $0.5 \leq x \leq 1.5$; $0 \leq y \leq 0.5$; and $0.5 \leq z \leq 1.5$.

10) A composition according to claim 8 wherein $x = 1$, $y = 0$, and $z = 1$.

11) A composition according to claim 8 wherein $1.5 \leq x \leq 2.5$; $0 \leq y \leq 0.5$; and $0 \leq z \leq 0.5$.

12) A composition according to claim 8 wherein $x = 2$, $y = 0$, and $z = 0$.

13) A composition according to claim 8 wherein $1.0 \leq x \leq 2.0$; $0 \leq y \leq 1.0$; and $0 \leq z \leq 0.5$.

14) A composition according to claim 8 wherein $x = 1.5$, $y = 0.5$, and $z = 0$.

15) A composition according to claim 8 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

16) A composition according to claim 9 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

17) A composition according to claim 10 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

18) A composition according to claim 11 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

19) A composition according to claim 12 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

20) A composition according to claim 13 wherein B is present in any amount between about 0.0001% and about 5 % in mole percent based on the total molar weight of said composition.

21) A light emitting device comprising:

a) a light source selected from the group consisting of: light-emitting diodes, lamps, and lasers, wherein said light source emits light having a frequency of between about 360 and about 480 nanometers; and

b) a phosphor described by the formula:

$$Sr_xBa_yCa_zSiO_4:Eu$$

in which x, y, and z are each independently any value between 0 and 2, including 0 and 2 subject to the proviso that the sum of x, y, or z is equal to at least 1, and wherein at least 50 % of all of the europium present is present in the divalent state, wherein said phosphor is disposed in a location at which it receives light from said light source.

22) A light emitting device according to claim 21 wherein said phosphor further comprises at least one additional element selected from the group consisting of: Ce, Mn, Ti, Pb, and Sn, wherein said additional element is present in any amount between about 0.0001 % and about 5 % in mole percent based upon the total molar weight of said phosphor.

23) A light emitting device as set forth in claim 21, comprising a mixture of at least two different phosphors described by said formula.

24) A light emitting device according to claim 23, wherein said mixture of phosphors emit white light.

25) A light-emitting device as set forth in claim 21 comprising a mixture comprising at least one phosphor described therein and a phosphor described by prior art.

26) A light emitting device as set forth in claim 21, further comprising a phosphor described by the formula:

$$Sr_xBa_yCa_zSiO_4:Eu^{2+}, B$$

in which x, y, and z are each independently any value between 0 and 2, including 0 and 2 subject to the proviso that the sum of x, y, or z is equal to at least 1, and further comprising at least one additional element B selected from the group consisting of: Ce, Mn, Ti, Pb, and Sn, wherein said additional element B is present in any amount between about 0.0001 % and about 5% in mole percent based upon the total molar weight of said phosphor, and wherein at least 50 % of all of the europium present is present in the divalent state, thus providing a mixture of phosphors, wherein said mixture of phosphors is disposed in a location at which it receives light from said light source.

27) A device according to claim 26, wherein said mixture of phosphors emit white light.

28) A light-emitting device as set forth in claim 21 comprising a mixture comprising at least one phosphor described therein and a phosphor described by prior art.